

This is the second species of *Branchinella* from India, the other being *B. kugenumaensis* Ishikawa recorded by Linder<sup>4</sup> from Madras and *B. kugenumaensis* var. *madurae* Sanjeeva Raj<sup>5</sup> from Madura. The genus is now for the first time recorded from north India.

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K. K. TIWARI

## 20. A NOTE ON VERY HEAVY FOULING OF COPPER SHEATHED HULLS OF NAVAL CRAFT AT BOMBAY

(With a plate)

Copper sheathing of ships' hulls has been considered to be the most successful method for prevention of marine fouling and attack of marine borers (1). The use of such protective sheathings has lost its popularity only with the development of suitable anti-fouling paints. However, even now copper sheet coverings are used to protect wooden hulls and also for other special reasons. Some of the Indian Naval craft with wooden hulls have their underwater portions covered with copper sheets and during dry-docking of such vessels at Bombay, it has been observed that generally the plates remain unfouled or lightly fouled with the worms (*Hydroides norvegica* Gunnerus). However, during the first quarter of 1958 a few of the craft, when dry-docked, were found to have been very heavily fouled. This was an unusual observation and the present account is based on data collected from three such vessels.

### OBSERVATIONS

The fouling observed on the copper-sheathed hulls was found to be uniformly heavy at all regions of the hull and also at all depths, beginning from the portion just below the boot-top area. A significant feature was that the fouling was mostly due to different species of Bryozoans. A portion of the hull above the bilge-keel of one of the boats is shown in Fig. 1, which gives a clear idea of the intensity of fouling observed. Representative collections of the fouling were made and the organisms present were identified as follows:

*Crisia eburnea* Linnaeus: Colonies of this erect polyzoan were found in large numbers and the bunches had grown to a maximum

<sup>4</sup> Linder, F. (1941): *Zool. Bidrag Uppsala*, 20: 101-202, pl. i.

<sup>5</sup> Sanjeeva Raj, P. J. (1951): *Curr. Sci.* 20: 334.



Fig. 1. Fouling of copper sheathing above the bilge-keel.  
(Portion on the left has been scraped, exposing  
copper plates.)



Fig. 2. Barnacle fouling on copper sheathing.

